

2010 Storm Requirements Worksheet

Data for Using Storm Requirements Threshold Flow Charts

This process must be done for each Threshold Discharge Area (See Engineering Standards, Ch. 2 for definition) in your project. Use the following information to navigate through the Flow chart for New Development (Figure 2.2), which may lead to the Redevelopment flow chart (Figure 2.3). Highlight your path through the flow chart(s).

1. _____ Sq. Ft. EXISTING impervious surfaces, total
2. _____% Percent existing impervious area coverage (of entire lot/site)
(Existing impervious area _____ ÷ Site area _____ x 100)
3. _____ Sq. Ft. Existing impervious surfaces to be REPLACED
4. _____ Sq. Ft. PROPOSED Total Impervious Surface (Building Roofs, including eaves, Driving and Parking surfaces, Walkways, accessory buildings, etc.)

For residential subdivisions: Number of lots proposed: _____

Number of lots ÷ site area in acres = _____ Dwelling Units/Gross Acre (DU/GA)

Use the following table to select the % of proposed impervious surface.

_____% x _____ acres = _____ acres x 43,560 sq. ft. = _____ sq.ft. proposed impervious surface

Dwelling Unit/Gross Acre	% Impervious
1.0 DU/GA	15
1.5 DU/GA	20
2.0 DU/GA	25
2.5 DU/GA	30
3.0 DU/GA	34
3.5 DU/GA	38
4.0 DU/GA	42
4.5 DU/GA	46
5.0 DU/GA	48
5.5 DU/GA	50
6.0 DU/GA	52
6.5 DU/GA	54
7.0 DU/GA	56
7.5 DU/GA	58

*Example: 3 proposed lots on 1.65 acres = 1.82 DU/GA; choose 2.0 DU/GA and use 25% Impervious. Then, using the following formula:
 $25\% \times 1.65 \text{ acres} = 0.4125 \text{ acres} \times 43,560 \text{ sq. ft.} = 17,968.5 \text{ sq. ft. proposed impervious surface}$*

5. _____ Sq. Ft. NEW Impervious Surface = total of PROPOSED Impervious surfaces, less EXISTING impervious surface (4, minus 1)
6. _____ Sq. Ft. NEW + REPLACED Impervious Surface = (5, plus 3)

7. _____ Sq. Ft. Reduction of Impervious Area for certain onsite stormwater management techniques (Pervious pavement, dispersion, 100% Rainwater Harvesting, Vegetated roof), per instructions in 2005 DOE Manual, Volume III, Appendix C.

8. _____ Sq. Ft. Adjusted NEW Impervious Surface (5, minus 7)

9. _____ Sq. Ft. Adjusted NEW + REPLACED Impervious Surface (6, minus 7)

10. _____ Sq. Ft. Area of Land-disturbing activities – amount of land that will be disturbed during all phases of construction and final property use.

11. _____ Acres Conversion of Native Vegetation to Lawn and/or Landscaping.

12. _____ Acres Conversion of Native Vegetation to Pasture.

13. For redevelopment with 5,000 Sq. Ft. or more of new impervious **only**:

_____ % Percent proposed improvement value exceeds existing assessed or replacement value
(Value of improvements _____ ÷ Assessed or Replacement value _____ X 100)

14. For roads with 5,000 Sq. Ft. or more of new impervious area **only**:

_____ % Percent impervious added to EXISTING (NEW ÷ EXISTING X 100)

Secondary Thresholds for MR #6 and MR #7

This worksheet can be used when MR #6 – Runoff Treatment, and MR #7 – Flow Control, are required for a project.

Definitions for PGIS, PGPS and Effective Impervious Surface are located in City code 24.06.040 E. & P. and at the end of this worksheet.

MR #6 – RUNOFF TREATMENT

_____ SF Total effective, pollution-generating impervious surface (PGIS) – If 5,000 SF or more, Runoff Treatment is required for those areas.

_____ Acres (SF/43,560) Total pollution-generating pervious surface (PGPS) – If ¾ acre or more, Runoff Treatment is required for those areas.

Combinations of PGIS and PGPS, less than each threshold, do not result in the treatment requirement. If either threshold is reached, both surface types must receive treatment.

Consult Figure 5.1 and Chapter 5 of the Storm and Surface Water Engineering Standards to determine specific treatment requirements in the categories: Oil control, Phosphorus, Enhanced and Basic. Note that single family projects that drain to Lake Washington need not include landscape areas in PGPS.

MR #7 – FLOW CONTROL

_____SF Total effective impervious surface – If 10,000 SF or more, Flow Control is required. *

_____CFS Increase in the 100-year flood frequency – If 0.1 CFS or more, Flow Control is required.

_____Acres (SF/43,560) Total converted pasture to lawn/landscape – If $\frac{3}{4}$ acres or more, Flow Control is required.

* Projects proven to drain to the Sturtevant Creek Basin only need to count net new impervious surface.

4/14/2010 JHR

“Pollution-generating impervious surface (PGIS)” means any impervious surface which is a significant source of pollutants in stormwater runoff, such as surfaces subject to regular vehicular use (paved or not), industrial activities, storage of erodible or leachable materials, wastes, or chemicals, and which receive direct or indirect (run-on or blown in) rainfall. Erodible or leachable materials, wastes, or chemicals are those substances which, when exposed to rainfall, measurably alter the physical or chemical characteristics of the rainfall runoff. Examples include, but are not limited to, erodible soils that are stockpiled, uncovered process wastes, manure, fertilizers, oily substances, ashes, kiln dust, and garbage dumpster leakage. Metal roofs are also considered to be PGIS unless they are coated with an inert, nonleachable material (e.g., baked-on enamel coating). A surface, whether paved or not, shall be considered subject to vehicular use if it is a regularly used surface: roads, unvegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, unfenced fire lands, vehicular equipment storage yards, and airport runways. The following are not considered regularly used surfaces: paved bicycle pathways separated from and not subject to drainage from roads for motor vehicles, fenced fire lands, and infrequently used maintenance access roads.

“Pollution-generating pervious surface (PGPS)” means any nonimpervious surface subject to the use of pesticides and fertilizers, or loss of soil. Examples include, but are not limited to, lawns, landscaped areas, golf courses, parks, cemeteries, and sports fields.

“Effective impervious surface” means those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system. Runoff from impervious surfaces on residential development sites is not considered effective impervious surface if the runoff is dispersed through at least 100 feet of native vegetation.